

## CLAIMS

What is claimed is:

1. A system for creating a brain lesion, comprising:  
a brain stimulation lead, including  
at least one electrode at a distal end of the brain stimulation lead, the at least one electrode capable of delivering both stimulation pulses and lesioning current to tissue adjacent the at least one electrode;  
at least one wire electrically connected to the at least one electrode; and  
at least one contact at a proximal end of the lead electrically connected to the at least one electrode via the at least one wire;  
an RF generator electrically connected to the at least one contact at the proximal end of the brain stimulation lead, which generator creates current delivered via the at least one wire and at least one electrode to tissue adjacent the at least one electrode; and  
at least one temperature sensor positioned to sense and report the temperature near the tissue receiving the lesioning current.
2. The system of claim 1 wherein the at least one temperature sensor is at least one thermistor.
3. The system of claim 1 wherein the at least one temperature sensor is at least one thermocouple.
4. The system of claim 1 wherein the at least one temperature sensor is at least one non-invasive temperature sensor.

5. The system of claim 1 further comprising a controller electrically connected to the RF generator, which controller controls the current delivered to the tissue based on the sensed temperature.

6. The system of claim 1 further comprising at least one recording electrode at a distal end of the brain stimulation lead.

7. The system of claim 1 further comprising at least one lumen in fluid communication with at least one port in the brain stimulation lead.

8. A brain stimulation lead for creating a lesion, comprising:  
at least one electrode at a distal end of the brain stimulation lead,  
the at least one electrode configured to deliver current to body tissue adjacent  
the at least one electrode, which current is at times stimulating current and at  
times lesioning current;

at least one wire electrically connected to the at least one  
electrode; and

at least a first contact at a proximal end of the brain stimulation  
lead and electrically connected to the at least one electrode via the at least one  
wire, which contact is configured for electrical connection to a pulse generator  
that creates stimulating current delivered via the at least one wire and the at  
least one electrode to tissue adjacent the at least one electrode;

at least a second contact at a proximal end of the brain stimulation  
lead and electrically connected to the at least one electrode via the at least one  
wire, which contact is configured for electrical connection to an RF generator that  
creates lesioning current delivered via the at least one wire and the at least one  
electrode to tissue adjacent the at least one electrode; and

at least one temperature sensor, which sensor senses and reports  
the temperature near the body tissue receiving the lesioning current.

9. The system of claim 8 wherein the first contact and second contact are one contact.

10. The system of claim 8 wherein the at least one temperature sensor is at least one thermistor.

11. The system of claim 8 wherein the at least one temperature sensor is at least one thermocouple.

12. The system of claim 8 further comprising at least a third contact at a proximal end of the brain stimulation lead and electrically connected to the at least one temperature sensor, which contact is configured for electrical connection to a controller that controls the lesioning current delivered to the tissue based on the sensed temperature.

13. The system of claim 8 further comprising at least one recording electrode at a distal end of the brain stimulation lead.

14. The system of claim 8 further comprising at least one lumen in fluid communication with at least one port in the brain stimulation lead.

15. A system for creating a lesion in body tissue, comprising:  
means for generating stimulating current;  
means for generating lesioning current;  
means for delivering current from the current generating means to body tissue, which current is at times stimulating current and at times lesioning current; and  
means for sensing temperature created by lesioning; and  
means for modifying lesioning based on the sensed temperature.

16. The system of claim 15, further comprising means for delivering substances to body tissue.

17. A method for treating a patient with a brain stimulation lead, comprising:

- implanting a distal portion of a brain stimulation lead in a patient, which lead has at least one contact at a proximal portion electrically connected to at least one electrode at the distal portion;

- connecting a pulse generator to the at least one contact of the brain stimulation lead;

- delivering electrical pulses from the pulse generator to stimulate tissue adjacent the at least one electrode of the brain stimulation lead;

- connecting an RF generator to the at least one contact of the brain stimulation lead;

- delivering current from the RF generator to create a lesion in tissue adjacent the at least one electrode of the brain stimulation lead;

- sensing the temperature adjacent the tissue receiving current from the RF generator;

- controlling lesion creation based on the sensed temperature.

18. The method of claim 17 further comprising controlling lesion creation with a controller communicating with the RF generator to provide closed-loop control based on the sensed temperature.

19. The method of claim 17 wherein the temperature sensor is positioned in a distal portion of the brain stimulation lead.

20. The method of claim 17 wherein the temperature sensor is an external sensor.

21. The method of claim 17 wherein the distal portion of the lead further includes at least one recording electrode electrically connected to at least one contact at a proximal portion of the lead, the method further comprising:  
connecting a recording system to the at least one contact electrically connected to the at least one recording electrode; and  
measuring electrical activity adjacent the at least one recording electrode.

22. The method of claim 17 wherein the distal portion of the lead further includes at least one port in fluid communication with at least one lumen defined by the body of the lead, the method further comprising:  
connecting an infusion device to the at least one lumen in fluid communication with the at least one port; and  
infusing an amount of a therapeutic substance into tissue adjacent the at least one port.

23. A method for creating a lesion in a patient's body, comprising:  
a) implanting a lead in a patient's brain;  
b) electrically connecting the lead to an external RF generator;  
c) creating a lesion with the lead and the external RF generator;  
d) disconnecting the lead from the external RF generator;  
e) waiting at least one week;  
f) evaluating the results of the lesion; and  
g) repeating b) through f) at least once to create a progressive, graduated lesion.

24. The method of claim 23 further comprising connecting the lead to a pulse generating device and delivering stimulating pulses to the patient's brain with the lead and the pulse generating device.

25. The method of claim 23 further comprising removing the brain stimulation lead from the patient's brain.

26. The method of claim 23 further comprising creating the lesion outside the operating room.